8876

Diag. Cht. No. 1283.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. 742-20-1-66 *Office No.* H8876

LOCALITY

State Texas

General locality Texas Coast

Locality Freeport

1966

CHIEF OF PARTY

R. E. Alderman

LIBRARY & ARCHIVES

DATE February 23, 1967

USCOMM-DC 37022-P66

8876

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-8876

Field No. 742-20-1-66

State TEXAS

General locality ~~TEXAS~~ Texas Coast

Locality ~~ENTRANCE TO~~ FREEPORT

Scale 1:20,000 Date of survey 10 to 28 March 1966

Instructions dated 25 April 1962 & 4 June 1964

Vessel HYDROGRAPHIC FIELD PARTY 742 -- LAUNCH CS-1177

Chief of party LCDR. R.E. ALDERMAN

Surveyed by JOHN B. JONES, W.M. NOBLE, J.T. HUBBARD, A.L. COLE & T.L. DYEE

Soundings taken by ~~fathometer~~, graphic recorder, ~~hand lead, wire~~ POLE

Fathograms scaled by PARTY PERSONNEL

Fathograms checked by PARTY PERSONNEL

Protracted by W.M. NOBLE (PARTY 742)

Soundings penciled by W.M. NOBLE " "

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS:

U. S. GOVERNMENT PRINTING OFFICE 16—66520-1

TABLE OF CONTENTS

A. PROJECT

Work on project OPR-428 was done in accordance with basic instructions 211-pt, dated 25 April 1962, and supplemental instructions C-211, S-2-HFP-219, dated 4 June 1964.

B. AREA SURVEYED

The area covered by this survey is in the general vicinity of the entrance to Freeport Harbor, Texas and covers the entrance channel between the U.S. Coast Guard Station on the northwest to the sea bouy on the southeast. The surveyed area extends northeast one and two-thirds miles from the channel and southwest three miles from the channel.

The boat sheet projection extends from latitude 28° 51'00" N to 29° 00'00" N, and from longitude 95° 09'00" W to 95° 25'00" W.

Field work on this project commenced on 10 March 1966 and was completed on 28 March 1966.

This survey made no junctions with prior surveys.

C. SOUNDING VESSELS

Launch CS-1177 was the only vessel used for the survey. The color used for the day letters was blue.

D. SOUNDING EQUIPMENT

A Raytheon Fathometer, model DE-723, serial number 544, 20 KC, was used to obtain soundings.

Corrections to be applied to echo soundings were determined from daily bar checks. An abstract of these corrections is included in appendix B. of this report.

A sounding pole was used to obtain soundings in depths less than six feet.

A handlead was used to obtain bottom samples.

A slight problem was encountered with the fathometer operating at varying frequencies. When the mark switch was triggered the fathometer frequency would vary. This would cause strays on the fathogram; appropriate notations were made on the fathograms and in the sounding volume records.

E. SMOOTH SHEET

The smooth sheet projection was made in the Washington Office with a projection ruling machine. Smooth plotting will be accomplished by Hydrographic Field Party 742.

F. CONTROL

Horizontal control was obtained by the standard visual three-point sextant fix method. In areas where it was impossible to see three signals, the bearing and distance method to prominant objects was used to locate the position. In some cases, the "see boat sheet" method, and a plot of time and course were used with an explanation in the remarks column of the sounding volume record.

The photo-hydro signals used were located from advance manuscript T-10797, October 1962.

Appendix A of this report contains a complete list of control used and the quality and source of control.

G. SHORELINE

Shoreline was transferred from blueline prints of advance manuscript as listed in section F of this report. Shoreline was corrected from Advanced Manuscript 10797, dated July 1966. mcm

The shore line was verified by the hydrographer using hydrographic methods.

Changes found in the shoreline are as follows:

(1). 28° 57.44' N
95° 16.37' W

A new pier has been constructed at this location. The pier was located by the three-point sextant fix method. This pier is located on revised Manuscript 10797, dated July 1966, and agrees with the hydrographic location. mcm

(2). 28° 57.24' N

95° 16.74' W

A new building (restaurant) built on pilings has been constructed at this location. The southwest corner of the building was located by the three-point sextant fix method. This building was not located on revised manuscript 10797, dated July 1966.

(3). 28° 55.69' N

95° 17.47' W

The west jetty of the entrance to Freeport has been extended 60 meters at this location. The end of the jetty was located by a reference distance from a hydrographic position, and "see boat sheet" method. The "extended jetty" is located on the manuscripts. The submerged rocks at the end of the jetties have been transferred from the manuscripts.

The low water line was not located because of the small range of tide and because of the inaccessibility due to breakers.

H. CROSSLINES

Crosslines were run in excess of 10% for the most part; however, it was not considered feasible to run crosslines in the entrance to Freeport Harbor between the jetties due to the lack of horizontal control.

I. JUNCTIONS

There were no junctions associated with this survey.

J. COMPARISON WITH PRIOR SURVEYS

This survey has been compared with the following prior surveys:

Survey No.	Date	Scale
5521	8 March 1934	1:20,000
6305	June, July 1937	1:10,000

In comparing this survey with prior survey No. 5521, it has been found that there is good agreement in the shoreline and in depths up to 20 feet. From the 20 foot depth to the outer offshore limits of the survey there is a marked dissagreement. The dissagreement is a linear increase in the difference in depths of the new and old survey. This difference is as much as eight feet on the outer limits of the survey: the new survey having the greater depths.

In comparing this survey with prior survey No. 6305, it has been found that similiar conclusions in agreement can be made for the area northeast of the entrance channel to Freeport.

In comparing the area southwest of the entrance channel to Freeport Harbor of this survey to that of the prior survey No. 6305, marked dissagreement is found. First, the shoreline of the new survey is

0.3 miles further northwest near the jetty of the entrance channel and 0.5 miles further northwest at the outer limits, as that shown on the prior survey.

The hydrography differed by a constant 6 to 10 feet through out the entire southwest area of the project; the new survey showing the larger depths.

The entrance channel to Freeport Harbor from the jetties to the sea bouy is in complete disagreement with the prior survey. The depths on this survey are a constant 10 feet greater than those on the prior survey. The location of the channel has also changed. According to the new survey the channel runs straight out from the jetties in a southeast direction. The prior survey shows the channel bending at the end of the jetties and continuing in a south-southeast direction from the jetties.

K. COMPARISON WITH THE CHART

This survey was compared with C&GS Small Craft Chart 152-SC, Galveston Bay to Freeport, Texas, second edition, October 1965, corrected through NM 40 - Oct. 2, 1965, page E, scale 1:80,000.

Specific changes and additions to be noted are as follows:

Pier	28° 57.44' N 95°16.37' W	See section G(1)

New Building 28° 57.24'N See section G(2)
95° 16.74'W

In comparison of this survey with C&GS Small Craft Chart 152-SC, it is observed that there is general agreement in the shore line. The channel to the entrance to Freeport Harbor is in general agreement with 152-SC; both in controling depth and location.

The hydrography is in general agreement northeast of the channel except in the deeper waters (greater than 30 feet) where this survey has depths which exceed those of the chart by 5 feet.

In the area southwest of the entrance channel, there is general disagreement of depth ranging from 5 to 10 feet; 5 foot disagreement in charted waters less than 15 feet and 10 foot disagreement in charted waters greater than 15 feet.

The two spoil areas adjacent to the entrance channel between bouys No. 6 and No. 10 on the northeast side and bouys No. 5 and No. 9 on the southwest side were found to contain no material. The U.S. Army Corps of Engineers were notified. They stated that these were designated spoil areas and would be used for such in the future.

L. ADEQUACY OF SURVEY

This survey is considered adequate to supercede prior surveys.

M. AIDS TO NAVIGATION

The U.S. Coast Guard maintains two fixed and nine floating aids to navigation within the limits of this survey.

A comparison with the Light List and chart indicates these aids adequately serve the purpose for which they were established.

N. STATISTICS

Number of positions..... 625

Statute miles of soundings..... 159.0

Total area surveyed (SNM)..... 13.3

A standard tide gage located at:

Latitude 28° 56.81'N

Longitude 95° 18.51'W

Fourteen bottom samples were taken on this sheet.

O. MISCELLANEOUS

The difference in agreement of this survey with the prior survey can be accounted for by the severe meterological conditions encountered in this area during the elapsed time interval of the surveys. This area has been subjected to several severe

hurricanes during the 30 year period separating the surveys.

Respectfully submitted,

William M. Noble

William M. Noble, Lt(jg) USESSA

APPENDIX A

List of Signals

Hydrographic Survey H-8876 (HFP 20-1-66)

ACE		T-10797
ANT	A	Dow Chemical Co. Plant, 1954 (landmark)
BED		T-10797
BIG		T-10797
BIL	A	West 2, USE ~~1897~~ ~~1912~~ 1897
CAB		T-10797
DAY		T-10797
EAR		T-10797
FLY		T-10797
GAL		T-10797
HAT		T-10797
ITS		T-10797
JOB		T-10797
KEY		T-10797 C.G. Cupola (landmark)
NOR		T-10797
OFF		T-10797
PAL		T-10797
POT		T-10797
RAG		T-10797
TAN		T-10797
VEX		T-10797 Lt. "11"
WAD		T-10797 Lt. "12"
ZOO		T-10797

APPENDIX B

Corrections to Echo Soundings

Hydrographic Survey H-8876 (HFP 20-1-66)

LAUNCH CS 1177

Date	Day Letter	Echo Recorder No.	Depth (ft)	Corr (ft)
3-10-66	a	DE-723 No. 544	4.0-18.0	-0.4
3-11-66	b	DE-723 No. 544	18.1-27.0	-0.2
			27.1-31.3	0.0
			31.4-38.1	+0.2
			38.2-Deeper	+0.4
3-14-66	c	DE-723 No. 544	2.6-6.5	-0.4
3-15-66	d	DE-723 No. 544	6.6-10.6	-0.2
3-17-66	e	DE-723 No. 544	10.7-14.8	0.0
3-18-66	f	DE-723 No. 544	14.9-21.2	+0.2
3-25-66	g	DE-723 No. 544	21.3-28.2	+0.4
3-28-66	h	DE-723 No. 544	28.3-33.6	+0.6
			33.7-38.3	+0.8
			38.4-Deeper	+1.0

APPENDIX C

TIDAL NOTES

Hydrographic Survey H-8876 (HFP 20-1-66)

Tide control for the survey was furnished by a tide gage located at Freeport, Texas.

Gage Location: Latitude 28 56.81'N

Longitude 95 18.51'W

Gage Type: Standard Automatic

Staff: Vitrified Scale

MLW corresponds to 2.7 feet on the staff

Corrections: No time or height corrections were applied.

Time Meridiam: 90th

APPENDIX D

Approval Sheet to Accompany
Hydrographic Sheet H-8876 (HFP 20-1-66)

The field and office work was accomplished under my supervision.

The hydrography was performed by Lt.(jg) John B. Jones III.

The descriptive report was written by Lt.(jg) William M. Noble.

The report and records for this survey are complete and adequate to the best of my knowledge.

Approved and forwarded

Richard E. Alderman
LCDR., USESSA
Officer-in-charge

ADDENDUM

TO

DESCRIPTIVE REPORT 20-1-66 (8876)

For the most part the descriptive report gives a thorough explanation of the methods and discrepancies in the area surveyed.

In a few cases of crosslines there were one foot differences of the smoothsheet soundings. The actual differences, taking the depths to the nearest two tenths foot, were at a maximun of 0.6 foot. This discrepancy can be accounted for by the slight difference between the daily bar check curve and the average of all the daily bar checks curve used to correct the soundings. Also rough seas, causing equally rough fathogram traces, accounted for discrepancies. Most of the discrepencies could be adjusted from the knowledge of the above and taking into account the bottom configuration of the area surveyed, i.e. the bottom was flat with a linear slope.

One line of hydrography presented some doubt as to its location. The line in question is 7e - 10e day. The two most probable location for this line were investigated and due to the smooth flat linear sloping bottom no conclusion could be made as to its exact location. With this agreeability no further investigation was deemed necessary.

No other additions or delitions have been made to the descriptive report and/or the records to this hydrographic project.

Respectfully submitted,

William M. Noble

William M. Noble
Lt(jg) USESSA

Approved and forwarded,

Archibald J. Patrick

Archibald J. Patrick
LCDR USESSA
Chief of Party 742

FORM C&GS-712
(3-9-64)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

December 20, 1966

[redacted] Atlantic Marine Center

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 8876

Locality: Harbor Entrance
Freeport, Texas

Chief of Party: R. E. Alderman

Plane of reference is Mean low water

Tide Station Used (Form C&GS-681):

Freeport, Texas

Height of Mean High Water above Plane of Reference is as follows:

1.8 feet

Remarks

J. M. Symons
Chief, Tides and Currents Branch

USCOMM-DC 6680-P64

FORM 197
(3-16-55)

GEOGRAPHIC NAMES

Survey No. H-8876

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Brazosport										1
Brazos River										2
Bryan Beach										3
Freeport		J.F.								4
Freeport Entrance										5
Quintana										6
Surfside Beach										7
		Names approved								8
		March 27, 1967								9
		Frank W. Hackett								10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

OFFICE OF HYDROGRAPHY AND OCEANOGRAPHY

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8876 FIELD NO. 742-20-1-66

Texas, Texas Coast - Freeport

SURVEYED: March 10, 1966 to March 28, 1966

SCALE: 1:20,000 PROJECT NO. : OPR-428

SOUNDINGS: Graphic recorder and sounding pole CONTROL: Sextant fixes on shore signals

Chief of Party	R. E. Alderman
Surveyed by	J. B. Jones
	W. M. Noble
	J. T. Hubbard
	A. L. Cole
	T. L. Dyee
Protracted by	W. M. Noble
Soundings Plotted by	W. M. Noble
Verified and Inked by	D. R. Munford (Norfolk)
Reviewed by	D. H. Benson
	Date: 1/23/69
Inspected by	R. H. Carstens

1. Description of the Area

This is a survey of the approaches to Freeport Harbor Entrance and comprises the area from 1 2/3 miles northeast of the jetties to 3 miles southwest and from the shoreline to 3 miles offshore.

The bottom is regular, showing no outstanding features. A dredged channel extends straight out between the jetties to the sea buoy in forty-foot depths.

From the shore to the 18-ft. curve, the bottom is hard sand; beyond the 18-ft. curve the bottom is soft brown mud.

2. Control and Shoreline

The hydrography is controlled by sextant fixes on shore signals.

The shoreline is from Advanced Manuscript T-10797, corrected through July 1966, and contains the corrections to the original manuscript obtained by the hydrographer during this survey. T-10797 has not been reviewed as yet.

3. Hydrography

A. Depths at crossings are in good agreement.

B. The usual depth curves were adequately drawn.

C. The development of the bottom configuration is adequate. There are no outstanding features or shoals in the area.

4. Condition of the Survey

The field plotting, records, and reports are adequate and conform to the requirements of the Hydrographic Manual.

5. Junctions

There are no contemporary adjoining surveys. At the limits, present survey depths differ with charted depths by as much as 8 ft.

6. Comparison With Prior Surveys

A. H-474 (1855) 1:10,000
H-539 (1856) 1:10,000
H-656 (1858) 1:10,000

These old handlead surveys cover most of the area of the present survey before the jetties at the mouth of the Brazos River were built. At the present time, the shoaling has accreted as much as 600 meters at the southwest limit of the survey and 200 meters at the northeast limit. In the offshore areas shoaling of as much as 3-6 ft. has occured and in the inshore areas the shoaling is as great as 10 ft.

6. Comparison With Prior Surveys (Continued)

B. H-2102 (1891) 1:10,000
H-2277 (1897) 1: 5,000

These two surveys were made after the jetties were built and show in considerable detail the hydrography within a mile outside the jetties as well as hydrography of the Brazos River as far up stream as Velasco. The controlling depth between the jetties was about 14 ft. on the older surveys; whereas, because of dredging, it is 35 feet in 1966. Deepening of as much as 15 ft. is noted in some areas where prior shoals have eroded.

There has been considerable change in the position of the shoreline, particularly the shoreline just west of the west jetty where erosion of as much as 500 meters has occurred. Northeast of the east jetty the shoreline has moved seaward about 130 meters since 1897.

The present survey supersedes H-2102 and H-2277 in the common area.

C. H-5521 (1934)
H-6305 (1937)
H-6314 (1937)
H-6398A (1938)

The shoreline northeast of the east jetty is substantially the same on the present survey as are the depth curves out to the 18-ft. curve. The water beyond the 18-ft. curve is now deeper. The 30-ft. curve being approximately a mile closer to shore.

Southwest of the west jetty, both the shoreline and the hydrography have changed radically since 1937. East of 95°20' the shoreline has eroded as much as 760 meters, while west of 95°20' and along the area known as Bryan Beach, the shoreline has moved seaward up to 650 meters.

The shoreline changes have affected the depths found in the area, the 30-ft. curve being about a mile closer to shore than formerly.

The present survey supersedes the above listed surveys in the common areas.

7. Comparison With Charts
887-SC 1st Edition, March 30, 1968
1283 12th Edition, December 12, 1966

A. Hydrography

The charted hydrography is from the previously discussed surveys together with selected soundings from the boatsheet of the present survey and the smooth sheet after verification, but before review and various Corps of Engineers blueprints and Notices to Mariners.

The major changes in depths since the prior surveys, and the resulting differences at the limits of the present survey, have resulted in an unnatural delineation of the charted depth curves, as for example: at lat. 28°53', long. 95°19!5 and lat. 28°57', long. 95°16' where unnatural protrusions in the 18-ft curve occur. The practice of showing an interuption in the curve with an explanatory note would appear more satisfactory than the present delineation.

Most of the soundings on Chart 887-SC originated with the present survey, either from the boatsheet or from the verified smooth sheet, but there are several that originated from other sources. The 13 at lat. 28°54!2, long. 95°19!35 came from C. of E. blueprints 43760-61 of 1948 and should be superseded by the present survey as should the two 31-ft. soundings on the south edge of the Spoil Area near lat. 28°54!1, long. 95°16!2 from the same blueprints. Eight soundings were taken from C. of E. blueprint 71187 (June 1966) and should be retained as subsequent to the present survey.

Many of the soundings on Chart 1283 (12th Edition) are from the earlier surveys and blueprints, the present survey having been only partially applied. A comparison between 887-SC and 1283 shows that in the area southwest of the jetties to Bryan Beach the changes shown on 887-SC have not all been applied to 1283.

The visible wreck at lat. 28°55!8, long. 95°17!8 is from N. to M. 33, 1966, subsequent to the present survey.

The present survey supersedes the charted hydrography except for the soundings and curves revised from C. of E. blueprint 71187 (June 1966), the visible wreck plotted from N. to M. 33, 1966, and the limits of the spoil areas.

B. Controlling Depths

The controlling depths in the Freeport Harbor Channel are tabulated on Chart 887-SC from the C. of E. report of March 1968, subsequent to the present survey and supersedes the present survey depths.

C. Aids to Navigation

The two fixed aids on the jetties and the nine floating aids marking the seaward channel are charted as shown on the survey and adequately serve the purpose intended.

8. Compliance With Instructions

The survey adequately complies with the project instructions.

9. Additional Field Work

This is a very good basic survey and no additional field work is recommended within its area.

A. However, surveys should be extended alongshore and offshore in order to provide adequate junctions with charted information.

Examined and Approved:

Chief
Marine Chart
Division

Associate Director
Office of Hydrography
and Oceanography

Form 946

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8876

Records accompanying survey: Smooth sheets 1; boat sheets 1; sounding vols. 3; wire drag vols. 0; Descriptive Reports 1; graphic recorder envelopes 1; special reports, etc. 0

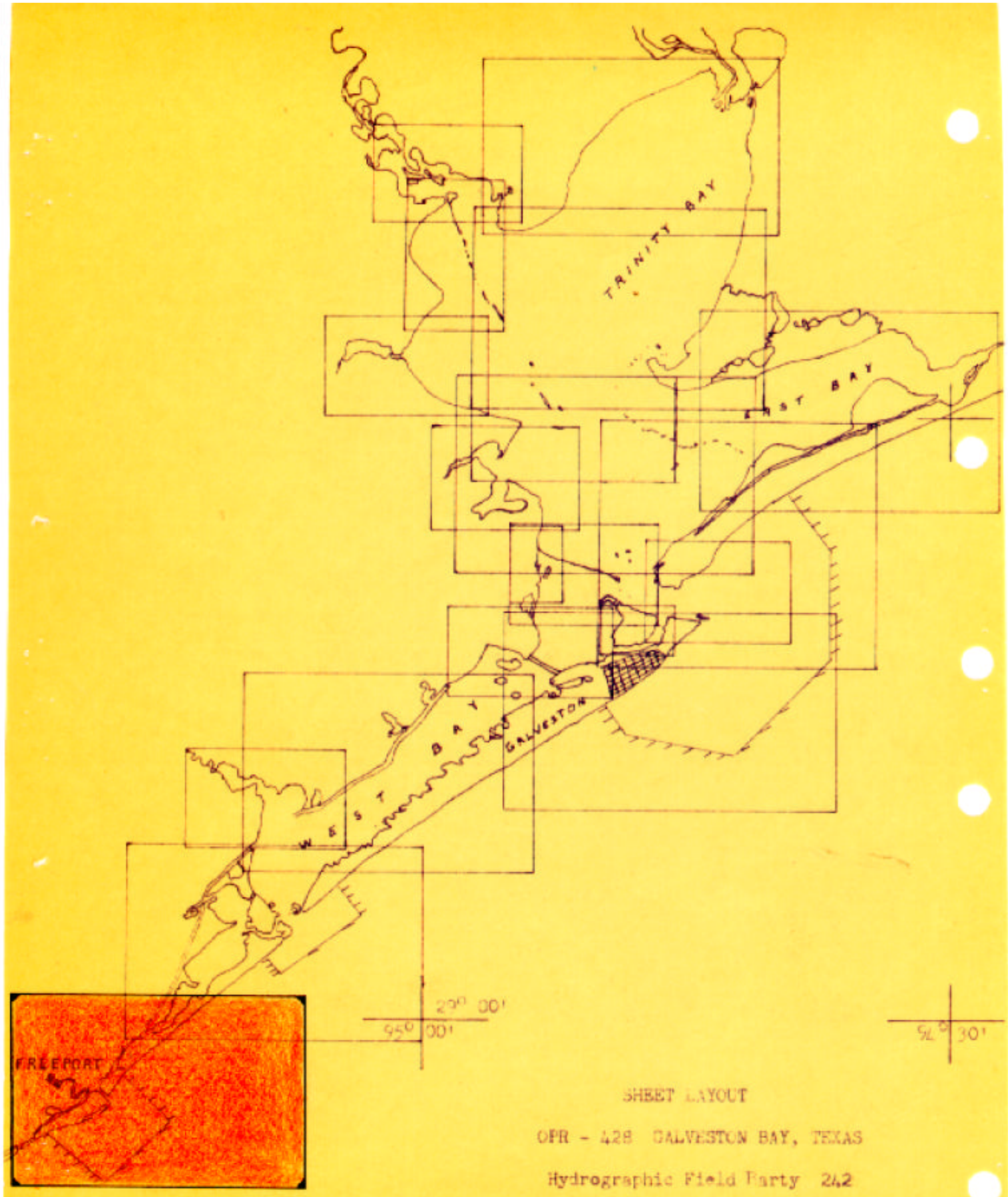
M-Air Photo Compilation T-10797

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet		625
Number of positions checked		41
Number of positions revised		0
Number of positions revised (refers to depth only)		0
Number of soundings erroneously spaced		0
Number of signals erroneously plotted or transferred		0
Topographic details	Time	
Junctions	Time	
Verification of soundings from graphic record	Time	3
Special adjustments	Time	0

Verification by DAN R. MUNFORD Total time 38 Date FEB 3, 1967

Reviewed by D H Benson Time 130 Date Jan 23, 1969

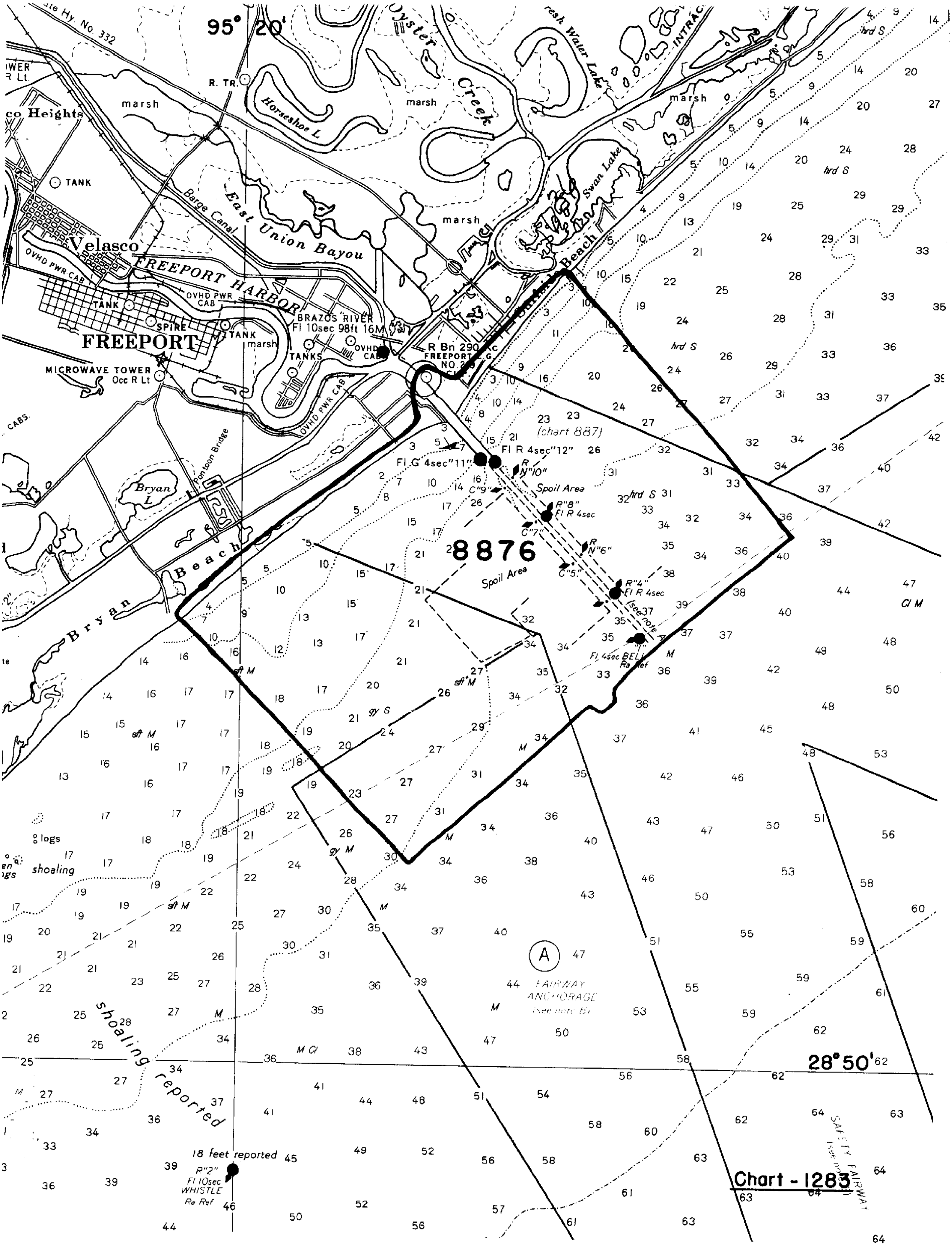


SHEET LAYOUT

OPR - 428 GALVESTON BAY, TEXAS

Hydrographic Field Party 242

H-8876 (HFP 20-1-66)



95° 20'
28°50'
Chart - 1283
8876
Velasco
FREEPORT
FREEPORT HARBOR
Freeport Heights
East Union Bayou
Barge Canal
Horseshoe L
Oyster Creek
Fresh Water Lake
Swan Lake
INTRACOASTAL
Bryan Beach
Bryan L
Pontoon Bridge
Quintana Beach
marsh
TANK
TANKS
SPIRE
R. TR.
MICROWAVE TOWER
Occ R Lt
OVHD PWR CAB
OVHD CAB
OVHD PWR CABS
BRAZOS RIVER
Fl 10sec 98ft 16M
R Bn 290 AC
FREEPORT C.G.
Fl G 4sec"11"
Fl R 4sec"12"
R N"10"
C"9"
R"8" Fl R 4sec
C"7"
R N"6"
C"5"
R"4" Fl R 4sec
Fl 4sec BELL Ra Ref
(see note A)
(chart 887)
Spoil Area
FAIRWAY ANCHORAGE (see note B)
SAFETY FAIRWAY (see note A)
shoaling reported
18 feet reported
R"2" Fl 10sec WHISTLE Ra Ref
logs
shoaling
hrd S
sft M
gy S
gy M
M Cl
Cl M

(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8876

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review

CHART	DATE	CARTOGRAPHER	REMARKS
152-SC	4-28-67 pages D,E	Kinnne	~~Full~~ Part ~~Before~~ After Verification Before Review Inspection Signed Via Drawing No.
887	5-10-67	C Holwer	~~Full~~ Part ~~Before~~ After Verification Before Review Inspection Signed Via Drawing No. 152SC drwg 4
1283	5-17-67	Earl M Bogoyi	~~Full~~ Part ~~Before~~ After Verification Before Review Inspection Signed Via Drawing No. 4A page E SC152
887SC	3-12-73	R. Davis	Full ~~Part~~ ~~Before~~ After Verification, Review, Inspection Signed Via Drawing No. #6
1283	3-30-73	W. Wanless	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via Drawing No. #23
1117	4-5-73	W. Wanless	Full ~~Part~~ ~~Before~~ After Verification Review Inspection Signed Via Drawing No. #29
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.